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# A new species of *Grewia* L. (Malvaceae, Grewioideae) from northeastern Madagascar

Gregory A. Wahlert, Peter B. Phillipson & Porter P. Lowry II

## Abstract

WAHLERT, G. A., P. B. PHILLIPSON & P. P. LOWRY II (2015). A new species of *Grewia* L. (Malvaceae, Grewioideae) from northeastern Madagascar. *Candollea* 70: 201-205. In English, English and French abstracts. DOI: <http://dx.doi.org/10.15553/c2015v702a4>

A new species of *Grewia* L. (Malvaceae, Grewioideae) from northeastern Madagascar is described and illustrated. This novelty most closely resembles *Grewia thouvenotii* Danguy from central-eastern Madagascar, but differs by a number of reproductive and vegetative characters. The new species belongs to the “*Grewia* *cuneifolia* group”, one of four informal species groups in *Grewia* sect. *Grewia*. In the 1970s René Capuron had been working towards a revision of *Grewia* and specimens annotated by him reveal that he considered the taxon described here to be new to science. While conducting an evaluation of the “*Grewia* *cuneifolia* group” from Madagascar, recent material was found that represents the same entity, making it now possible to provide a detailed description of this new species. We also provide a distribution map and preliminary conservation assessment of the new species using the IUCN Red List Categories and Criteria.

## Résumé

WAHLERT, G. A., P. B. PHILLIPSON & P. P. LOWRY II (2015). Une nouvelle espèce de *Grewia* L. (Malvaceae, Grewioideae) du nord-est de Madagascar. *Candollea* 70: 201-205. En anglais, résumés anglais et français. DOI: <http://dx.doi.org/10.15553/c2015v702a4>

Une nouvelle espèce de *Grewia* L. (Malvaceae, Grewioideae) du nord-est de Madagascar est décrite et illustrée. Cette nouveauté ressemble le plus à *Grewia thouvenotii* Danguy du centre-est du pays, mais en diffère par un nombre de caractères reproducteurs et végétatifs. Cette nouvelle espèce appartient au «groupe *Grewia* *cuneifolia*», l'un des quatre groupes d'espèces informels de *Grewia* sect. *Grewia*. Dans les années 1970, René Capuron avait travaillé sur une révision du genre *Grewia* et les spécimens qu'il a annotés montrent qu'il considérait le taxon décrit ici comme nouveau pour la science. Dans le cadre d'une évaluation du «groupe *Grewia* *cuneifolia*» de Madagascar, des récoltes récentes appartenant à cette même entité ont été repérées, ce qui rend possible une description détaillée de cette nouvelle espèce. Une carte de répartition est également fournie de même qu'une évaluation préliminaire du statut de conservation selon les Catégories et Critères de la Liste Rouge de l'IUCN.

## Keywords

MALVACEAE – GREWIOIDEAE – *Grewia* – IUCN conservation status – Madagascar – René Capuron – Taxonomy

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## Introduction

The genus *Grewia* L. (Malvaceae, *Grewioideae*), comprising ca. 320 species of trees, shrubs, and lianas, has members throughout the Old World (PLANT LIST, 2015). In Madagascar, it is currently represented by 67 published species that occur in a wide variety of vegetation types and bioclimatic regions (SCHATZ, 2001; RANDRIANASOLO et al., 2013; MADAGASCAR CATALOGUE, 2015). *Grewia* has not been treated in the “Flore de Madagascar et des Comores” series, although René Capuron (1921–1971) was working towards a taxonomic revision of the genus prior to his death. He published a treatment of *Grewia* subg. *Grewia* sect. *Axillares* Burret (CAPURON, 1964) with other revisions completed and published posthumously in collaboration with David Mabberley for *Grewia* subg. *Vincentia* (Benth.) Capuron (CAPURON & MABBERLEY, 1999) and *Grewia* subg. *Burretia* (Hochr.) Capuron (MABBERLEY & CAPURON, 1999) based on Capuron’s notes and annotated specimens. Professor Mabberley also produced a draft manuscript, which remains unpublished, based on Capuron’s earlier notes and taxonomic concepts, in which 45 species were recognized in *Grewia* subg. *Grewia* sect. *Grewia* from Madagascar, including 24 proposed as new to science (CAPURON & MABBERLEY, unpubl. data).

In their unpublished manuscript, Capuron and Mabberley recognized four informal groups within *Grewia* sect. *Grewia*, one of which, referred to as the “*Grewia* *cuneifolia* group”, was characterized by an inflorescence with three to several flowers, petals present or absent, an androgynophore without a scale, one ovule per placenta, and fruits without spines. Within this group, they recognized 12 species and two varieties, and mentioned an additional five unranked entities that they regarded as needing further study. In the time since Capuron studied this section and Mabberley prepared the draft manuscript, extensive botanical inventory work throughout Madagascar has produced many new plant collections, including of *Grewia*, which provide a significantly improved basis for evaluating the taxa they planned to recognize, including those they considered to be new.

In the course of evaluating *Grewia* for the Catalogue of Vascular Plants of Madagascar project (MADAGASCAR CATALOGUE, 2015), a set of specimens from the Masoala Peninsula and surrounding areas stood out as being morphologically different from all other material belonging to the “*Grewia* *cuneifolia* group”. Three of these collections had been seen years earlier by Capuron, who had assigned them to *G. thowenotii* Danguy and had annotated two of them as “ssp. *masoalensis*” and one as “var. *suavissima*”, names that were, however, never published. Mabberley noted that Capuron had annotated these specimens with two different names, but given the paucity of material available to him, he thought it premature to recognize any infraspecific taxa within *G.*

*thowenotii* (CAPURON & MABBERLEY, unpubl. data). During the last decade, additional specimens have been collected that clearly belong to the same undescribed entities, now making it possible for us to conduct a thorough reevaluation of the available herbarium material.

Research for the work presented here was conducted primarily using specimens deposited at three herbaria, G, MO, and P, supplemented by the examination of high resolution scans of the material at TEF and TAN in Madagascar. Geo-coordinates for specimens that were estimated “post-facto” are given in square brackets.

We have carefully compared the material regarded by Capuron and Mabberley as possibly representing a new infraspecific taxa with more the recent collections of *G. thowenotii* and other similar members of the “*Grewia* *cuneifolia* group”, examining morphological features in combination with eco-geographic parameters, including bioclimate (CORNET, 1974; SCHATZ, 2000), geological substrate (DU PUY & MOAT, 1996), and vegetation type (MOAT & SMITH, 2007), an approach used widely for circumscribing species in Madagascar. The results of this comparison led us to the conclusion that the unpublished entities bearing Capuron’s annotations together with the recent collections represents a single new taxon and that it is best recognized at the rank of species. In this paper we describe this new species of *Grewia*, provide an illustration and distribution map, and make a preliminary risk of extinction assessment using the IUCN Red List criteria (IUCN, 2012).

## Taxonomic treatment

*Grewia mabberleyana* Phillipson, Wahlert & Lowry, **spec. nova** (Fig. 1).

**Typus:** MADAGASCAR. **Prov. Toamasina:** Ambodiriana, RN de Betampona, [17°55’S 49°13’E], 28–29.XI.1962, buds & fl., *Service Forestier* 22132 (holo-: P [P00246537]!; iso-: BR, CAS, G [G00341580]!, P [P00722595, P00722596]!, K, MO–2282215!, NY, S, TEF [TEF000879]!, WAG).

*Grewia mabberleyana* Phillipson, Wahlert & Lowry is most similar morphologically to *G. thowenotii* by the densely stellate indument present on the young stems, abaxial surfaces of the leaves, petioles, peduncles, and pedicels, and the adaxial surfaces of the sepals, and by the discolorous leaves. It differs by its much longer peduncles (13–20 mm in *G. mabberleyana* vs. 4–10 mm in *G. thowenotii*) and pedicels (11–15 mm vs. 3–5 mm), its larger sepals (5–12 mm vs. 3.5–4.5 mm), and its leaves drying light green (vs. brownish-gray).



**Fig. 1.** – *Grewia mabberleyana* Phillipson, Wahlert & Lowry. **A.** Flowering branch; **B.** Leaf, abaxial surface; **C.** Flower. [Service Forestier 22132, P] [Drawn by R. L. Andriamiarisoa]

*Tree* 10–25 m tall, trunk to 50 cm in diameter, evergreen, young stems densely covered with white-beige stellate trichomes, lenticels absent; stipules 1–2 mm long, narrowly triangular to linear, caducous, abaxial and adaxial surfaces densely stellate-pubescent. *Petiole* 5–10 mm long, densely stellate pubescent. *Leaves* alternate; blade 2.5–8 × 1–3.3 cm, oblanceolate to oblong-elliptic, discolorous, abaxial surface densely covered with stellate trichomes giving it a velvety appearance and feel, lacking domatia, adaxial surface sparsely to moderately stellate-pubescent, base cuneate, margins entire to shallowly serrulate, apex acute to rounded, rarely shortly acuminate; midvein, secondary and tertiary veins densely stellate pubescent on abaxial surface, sparsely to moderately so on adaxial surface; blade sub-palmatinerved but appearing penninerved, with 3 or 4 pairs of secondary veins, the basal two secondary veins subopposite and extending distally ca. ½ the length of the blade, midvein and secondary veins raised abaxially, not raised adaxially, tertiary venation scalariform. *Inflorescence* a terminal or subterminal umbellate cyme, 4- to 8-flowered, peduncle 13–20 mm long, 0.7–1 mm in diam., densely stellate-pubescent; pedicels 11–15 mm long, densely covered with stellate trichomes, pedicel bracts narrowly triangular to linear, 1–2.2 mm long, caducous, both surfaces densely stellate-pubescent. *Flowers* bisexual, pentamerous, rarely tetramerous, fragrant. Sepals valvate, erect in bud, reflexed at anthesis, 5–12 × 1–2.6 mm, narrowly oblong, yellow in vivo, abaxial surface densely covered with white-beige trichomes, adaxial surface glabrous except for a small basal tuft of white trichomes, base truncate, margins entire, apex acute. *Petals* 3–6.5 × 0.7–1.4 mm, narrowly oblong, yellow in vivo, glabrous on both surfaces, base truncate, margins entire, apex rounded; the basal adaxial portion of the petal bearing a papillose nectiferous pad 0.6–1 × 0.6–1.1 mm, lateral and apical portions of pad with a brown, membranous scale, margin of scale densely covered with white-beige trichomes and extending 0.6–1.2 mm above the apex of the pad; androgynophore 0.6–1.4 mm, glabrous. *Stamens* 30 to 60, yellow in vivo, filament 5–9 mm long, filiform; anther 0.3–0.5 × 0.3–0.5 mm. *Ovary* ca. 1 × 1 mm, completely covered with white-beige trichomes, style 6–9.5 mm long, green in vivo, stigma often 5-lobed. *Fruit* incompletely known, drupaceous, 2- or 3- (or 4?)-lobed, ca. 0.75 × 0.75 cm, surface papillose, sparsely covered in minute stellate trichomes.

*Etymology.* – The new species is named in honor of Professor David J. Mabberley, who has worked extensively on the diversity and taxonomy of *Grewia* in Madagascar, and has co-authored published revisions for two of its subgenera.

*Distribution and habitat.* – *Grewia mabberleyana* grows in humid and subhumid forests of northeastern and eastern Madagascar, from sea level to 1700 m elevation (Fig. 2).

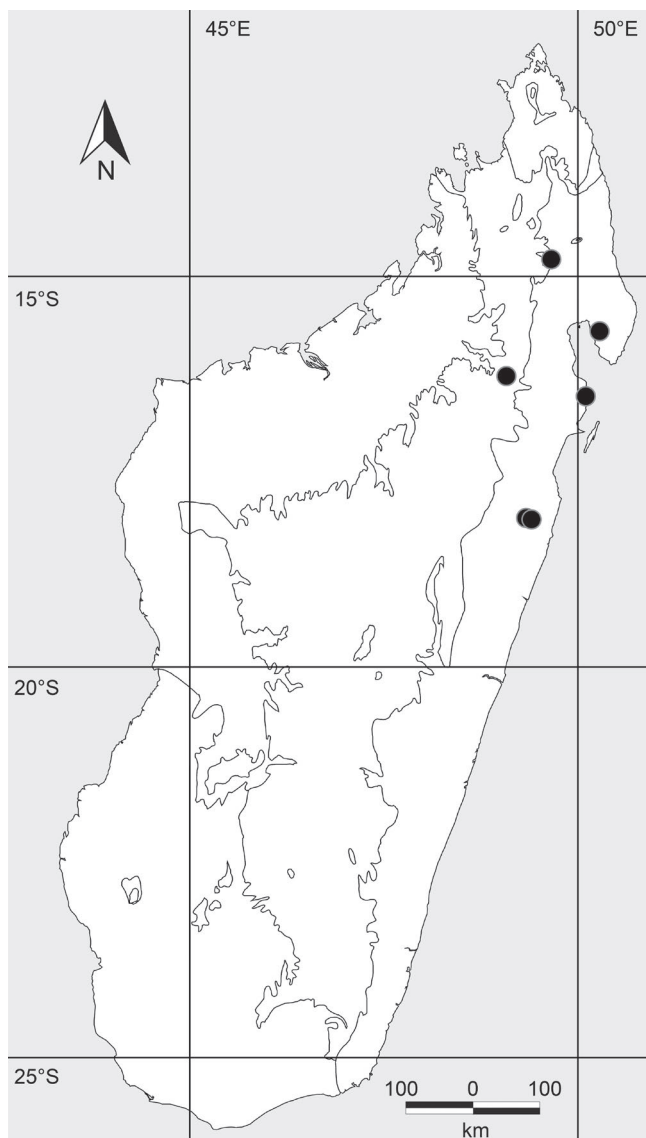


Fig. 2. – Geographic distribution of *Grewia mabberleyana* Phillipson, Wahlert & Lowry (circles) mapped on the bioclimatic zones of Madagascar (after CORNET, 1974; see SCHATZ, 2000).

It is known from collections made in four protected areas: Anjanaharibe-Sud Special Reserve, Betampona Strict Nature Reserve and the Mananara-Nord and Masoala National Parks. It has also been collected just outside the Marotandrano Special Reserve, and probably also occurs within this protected area. By comparison, *G. thouvotii* generally occurs further south, extending from Zahamena National Park and the forests around Moramanga, including in the Analamazaotra Special Reserve, to Ranomafana National Park more than 400 km to the south, where a single collection is known (for more details see the treatment in MADAGASCAR CATALOGUE, 2015).

**Conservation status.** – Five of the six known subpopulations of *G. mabberleyana* are located within protected areas (including two within Betampona Strict Nature Reserve) that recently have, however been subjected to illegal logging and pressures resulting from other human activities, in particular slash and burn agriculture. With an Extent of Occurrence of 23,655 km<sup>2</sup> and an Area of Occupancy of only 70 km<sup>2</sup>, *G. mabberleyana* is therefore assigned a preliminary conservation status of “Near Threatened” [NT] following IUCN Red List Categories and Criteria (IUCN, 2012).

**Vernacular names and uses.** – The following names have been recorded for *G. mabberleyana* on associated specimen labels: “afotrafotsy” (*Réserves Naturelles 5897*) and “hafotrankora” (*Service Forestier 26231*). As with many other species of *Grewia* in Madagascar, the fibrous bark is used to make cord (*Service Forestier 26231*).

**Paratypes.** – **MADAGASCAR. Prov. Antsiranana:** SW d’Andapa, Anjanaharibe-Sud PA, village de Mandritsarahely, 14°43’10”S 49°27’12”E, 1700 m, 14.II.1995, fr., *Ravelonarivo & Rabesonina 664* (MO, P, TAN). **Prov. Mahajanga:** Mandritsara District, Antsiatsiaka village near Marotandrano, [16°18’11”S 48°51’19”E], 13.XI.1966, fl., *Service Forestier 26231* (BR, CAS, E, G, K, MO, NY, P, S, TEF, WAG). **Prov. Toamasina:** Parc national de Mananara-Nord, près d’Antanambe, env. du camp, PK5, 3.XII.1989, imm. fr., *Morat et al. 8610* (P); RNI de Betampona, 17°54’46”S 49°12’20”E, 427 m, 20.XI.2001, fl., *Rabehevitra et al. 15* (G, MO, TEF); *ibid. loc.*, 17°54’23”S 49°12’16”E, 392 m, 26.XI.1998, fl., *Randrianaivo & Westerbaus 281* (BR, G, MO, P, US, TAN); *ibid. loc.*, [17°55’S 49°13’E], 19.XI.1953, fl., *Réserves Naturelles 5897* (MO, P, TEF); Masoala Peninsula, Ambanizana, “S Trail” (S of Androka River), 15°38’S 49°59’E, 400 m, 29.X.1992, fl., *Schatz et al. 3356* (BR, G, K, MO, P, TAN, US, WAG). **Prov. unknown:** Masoala, 500 m, 1912, fl., *Perrier de la Bâthie 5587* (G, P).

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